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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,863	05/14/2001	Reinhold Geiselhart	DE920000017US1	1179

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INTERNATIONAL BUSINESS MACHINES CORP
IP LAW
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EXAMINER	
LU, KUEN S	

ART UNIT	PAPER NUMBER
2177	5

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PP4

Office Action Summary	Application No.	Applicant(s)	
	09/855,863	GEISELHART, REINHOLD	
	Examiner	Art Unit	
	Kuen S Lu	2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *14 May 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

The drawing filed on 5/14/2001 are not approved by the Draftsperson under 37 CFR 1.84 or 1.152, formal drawings are required in response to this office action, Figures 1-3.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show 323C as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Abstract

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc. In this case, the abstract repeats information given in the title. Also recited is “Disclosed is a method and a system for...”.

Claim Objections

Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In this case, claim 16 is dependent on itself.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-2, 13-14 and 17-18 are rejected under 35 U.S.C. 102(e) as anticipated by Braden-Harder et al. (U.S. Patent 5,933,822).

Braden-Harder teaches the limitations of claims 1, 13 and 17 by the following:

"...ranking a set of documents,...gathering context information from documents" at col. 22, line 67-col. 23, line 5;

"generating at least one rank criterion from the context information" at col. 9, lines 10-13; and

"ranking the documents, based on the at least one rank criterion" at col. 9, lines 25-30.

As per claims 2, 14 and 18, Braden-Harder teaches "re-ranking an existing ranked result set of documents." at the Abstract, lines 11-26.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth

in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3, 8, 15, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (U.S. Patent 5,933,822) as applied to claims 1-2, 13-14 and 17-18 above, and further in view of Schuetze (U.S. Patent 5,675,819).

As per claims 3, 8, 15, 19 and 24, Braden-Harder does not teach extracting lexical affinities from the documents.

However, Schuetze teaches lexical co-occurrence at col. 6, lines 5-8.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Schuetze's reference with Braden-Harder's because both teachings are devoted to fast retrieval of documents through more accurate ranking algorithm. The combined teachings would have combined the implementation of word vector and logical form triple with weighting function for more accurate ranking the retrieved documents, and thus improved the performance of retrieving documents.

3. Claims 4-7, 9, 16, 20-23, 25, 2/6, 2/6/7, 4/6, 4/6/7, 5/6, 5/6/7, 1/6, 1/6/7, 17/22, 17/22/23, 17/20/22, 17/20/22/23, 17/21/22, 17/21/22/23, 17/18/22 and 17/18/22/23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (U.S. Patent 5,933,822) as applied to claims 1-2, 13-14 and 17-18 above, and further in view of Marchisio (U.S. Pub. 2002/ 0156763).

As per claims 4, 9, 20, and 25, Braden-Harder does not teach "features extraction".

However, Marchisio teaches at Fig. 3, elements 31-39, col. 6-7, [0065], lines 1-20.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's

invention was made to include Marchisio's teaching on features extraction with Barden-Harder's for providing additional functions such as detecting acronyms and recognizing specific HTML, SGML or XML tags to the users of Braden-Harder's system.

As per claims 5 and 21, Braden-Harder does not teach "extracting word frequency statistics from the documents".

However, Marchisio teaches "...word frequency statistics..." at col. 4, [0034], lines 18-20.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to include Marchisio's teaching on calculating word frequency with Braden-Harder's document retrieval system. The teaching would have enabled Barden-Harder's system to count the occurrences of individual search terms. Based on the statistics, the system would have allowed users to identify the higher hit search terms for improving the search syntax.

A s per claims 6, 2/6, 4/6, 5/6, 1/6, 16, 22, 17/22, 17/20/22,17/21/22 and 17/18/22, Braden-Harder does not teach "...weighting function".

However, Marchisio does at col. 3, [0031], line 4 - [0032], line 14.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Marchisio's reference with Braden-Harder's because both devoted to improve the performance of document retrieval. Measuring the similarity between query and document searching vectors through weighting function is a tool allow users of Barden-Harder's system to better sense the relative importance of the terms used in the document search and retrieval.

As for claims 7, 2/6/7, 4/6/7, 5/6/7, 1/6/7, 23, 17/22/23, 17/20/22/23, 17/21/22/23 and 17/18/22/23, Braden-Harder teaches "utilizing discrete ranking levels in said weighting step." at col. 24, line 64 – col. 25, line 22.

4. Claims 10-11, 26-27, 10/11 and 26/27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (U.S. Patent 5,933,822) as applied to claims 1-2, 13-14 and 17-18 above, and further in view of Kupiec (U.S. Patent 5,696,962).

Braden-Harder does not specifically teach creating statistical table for the frequencies of search terms hit during the document retrieval, though teaches re-ranking of documents retrieved at the Abstract, lines 11-26.

However, Kupiec teaches creating and utilizing frequency table for such purposes at col. 13, table 1, lines 1-25.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Kupiec's reference with Braden-Harder's because both applied natural language to the process of document retrieval and ranking. Kupiec teaches using natural language to create various queries, while Braden-Harder teaches applying natural language to the retrieved documents for producing logical forms in order to further rank the documents. The combined teaching would have applied natural language to the document retrieval and ranking process from the very beginning to the end such that overall precision of the process would have been much improved.

5. Claims 9/11 and 25/27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (U.S. Patent 5,933,822) in view of Marchisio (U.S. Pub. 2002/0156763), as applied to claims above and further in view of Kupiec (U.S. Patent 5,696,962).

Braden-Harder or Marchisio doe not specifically teach creating statistical table of search term frequency, though Braden-Harder teaches re-ranking of documents at the abstract.

However, Kupiec teaches creating and utilizing frequency table for such purposes at col. 13, table 1, lines 1-25.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine the teachings of Marchisio and Kupiec with Braden-Harder's such that users of Braden-Harder's system would have been able to retrieve documents closer to what they had actually intended to because of re-ranking of the documents retrieved.

6. Claims 3/6, 3/6/7, 18/19/22 and 18/19/22/23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (U.S. Patent 5,933,822) in view of Schuetze (U.S. Patent 5,675,819), as applied to claims above and further in view of Marchisio (U.S. Pub. 2002/0156763).

Braden-Harder or Schuetze does not teach not teach "...weighting function".

However, Marcisio does at col. 3, [0031], line 4 - [0032], line 14, respectively.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine the references of Schuetze and Marchisio with Braden-Harder's because they were all devoted to improve the ranking or re-ranking performance of document retrieval. The combined references would have made weighting function into the implementation of Braden-Harder's system. The weighting function would have better measured the relative importance of search terms and distance between query and document vectors. The measurement would have helped users of Braden-Harder's system because of faster and better sense on the search terms.

7. Claims 8/11 and 24/27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (U.S. Patent 5,933,822) in view of Schuetze (U.S. Patent 5,675,819), as applied to claims above and further in view of Kupiec (U.S. Patent 5,696,962).

Braden-Harder or Schuetze does not teach creating and utilizing frequency table, though Braden-Harder teaches re-ranking of document retrieval at the abstract.

However, Kuepic teaches creating and utilizing frequency table at col. 13, table 1, lines 1-25.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine the teachings of Schuetze, Kupiec and Braden-Harder which would have made the techniques of word vector, logical form and natural language processing into a combined document retrieval system. The system would have made the document retrieval a precision process because of better ranking and re-ranking algorithm.

8. Claims 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden-Harder et al. (U.S. Patent 5,933,822) as applied to claims 1-2, 13-14 and 17-18 above, and further in view of Fagin et al. (U.S. Patent 6,014,664).

Braden-Harder does not teach increasing the weight of higher rankings or decreasing the lower ones in order to increase the distance between the ranking scores.

However, Fagin et al. specifically and clearly teaches scoring function, weighting rule, weighting adjustment and combined scoring functions, among others, through columns 9, 10 and 11. Furthermore, Braden-Harder teaches re-ranking documents into optimal, relevant and irrelevant, in terms of their relevance to query terms (Abstract, lines 11-26).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Fagin's reference with Braden-Harder's because both devoted to improve the accuracy and relevance of query terms such that more desired and only the highest ranked documents would have been retrieved. Combining the two teachings would have allowed users to enter more flexible queries and obtained highly re-ranked, but a smaller set of documents.

Conclusion

The prior art made of record

A. U.S. Patent No. 5,933,822

B. U.S. Pub. No. 2002/0156763

C. U.S. Patent No. 5,675,819

D. U.S. Patent No. 5,696,962

E. U.S. Patent No. 6,014,664

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

F. U.S. Patent No. 6,519,585

G. U.S. Pub. No. 2002/0055940 A1

H. U.S. Patent No. 6,493,702

I. U.S. Pub. No. 2002/0103798 A1

J. U.S. Patent. No. 5,724,567

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuen S Lu whose telephone number is 703-305-4894. The examiner can normally be reached on 8 AM to 5 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on 703-305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

KL Lu
Patent Examiner
August 22, 2003

JOHN BREENE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100